

Case 14-M-0094, Proceeding on Motion of the Commission to
Consider a Clean Energy Fund

Clean Energy Fund Investment Plan: Budget Accounting and Benefits Chapter

Submitted by:

The New York State Energy Research and Development Authority

Revised April 1, 2016

Budget Accounting and Benefits

This Budget Accounting and Benefits chapter is intended to provide a current and comprehensive compilation of budgets and benefits for all Market Development and Innovation & Research portfolio initiatives contained within this Investment Plan as of April 1, 2016. These are compared to the minimum projected benefits identified in the CEF Order and presented in **Table 1** for the combined four portfolios of the CEF which also includes NY-Sun and NYGB. All dollars and benefits are reflected in the year in which they are anticipated to be committed.

Table 1. CEF Minimum Projected Benefits 2016 – 2025 (in millions)

		Cumulative Annual	Lifetime
Energy Efficiency	MWh	10.6	*
	MMBtu	13.4	*
	MW	*	*
Renewable Energy	MWh	*	88
	MW	*	*
CO2e Emissions Reductions (tons)		*	133
Customer Bill Savings		*	\$39,131
Private Investment		*	\$29,356

* Denotes metric to be tracked and reported

Table 2 summarizes the progressive budget schedule by portfolio, admin, and evaluation funding. **Table 3** details the budget schedule by all initiatives contained within this Investment Plan.

Table 2. Market Development and Innovation & Research Portfolio Budgets¹

Clean Energy Fund: Market Development and Innovation & Research Portfolio Budgets								
	Program Authorization	2016	2017	2018	2019	2020	Total	% of Program Authorization
Market Development								
Program Funds		\$203,690,575	\$113,733,190	\$64,560,790	\$500,000	\$500,000	\$382,984,555	16.41%
NYS Cost Recovery Fee	\$2,393,728,000	\$5,078,082	\$2,907,646	\$1,743,348	\$27,725	\$33,675	\$9,790,475	
Innovation & Research								
Program Funds	\$631,672,000	\$ -	\$ 250,000	\$ -	\$ -	\$ -	\$ 250,000	0.04%
NYS Cost Recovery Fee		\$ -	\$ 6,391	\$ -	\$ -	\$ -	\$ 6,391	
Administration	\$274,400,000	\$18,465,753	\$10,596,498	\$6,339,447	\$0	\$0	\$35,401,698	12.90%
Evaluation	\$130,200,000	\$3,587,500	\$4,962,500	\$6,599,500	\$732,500	\$997,000	\$16,879,000	12.96%
Total	\$3,430,000,000	\$230,821,910	\$132,456,225	\$79,243,085	\$1,260,225	\$1,530,675	\$445,312,119	12.98%

* The CEF Order authorized CEF funding and noted that these costs would be funded from the funding authorized for the combined program costs and CRF costs. NYSERDA has revised the presentation in this summary to report CRF separate from program costs, but still subject to the original authorization on a combined basis. This approach improves the transparency of reporting and also recognizes the differences in the timing of commitment/expenditures of program costs vs. CRF costs. The initial budget for CRF assumes the assessment will average 2.2% of funding over the term of the CEF.

¹The CEF Order authorized CEF funding and noted that these costs would be funded from the funding authorized for the combined program costs and New York State Cost Recovery Fee (CRF) costs. NYSERDA has revised the presentation in this summary to improve transparency and report CRF separate from program costs, but still subject to the original

Table 3. Market Development and Innovation & Research Budget by Chapter and Initiative

Market Development and Innovation & Research by Chapter and Initiative						
Market Development	2016	2017	2018	2019	2020	Total
Resource Acquisition Transition Chapter						
<i>Commercial</i>	\$27,000,000	\$10,000,000	\$0			\$37,000,000
<i>Industrial</i>	\$34,200,000	\$7,650,000	\$2,250,000			\$44,100,000
<i>Agriculture</i>	\$1,800,000	\$1,800,000	\$0			\$3,600,000
<i>Multifamily Market Rate</i>	\$3,117,517	\$2,078,345	\$0			\$5,195,862
<i>Single Family Market Rate</i>	\$12,924,640	\$5,965,040	\$0			\$18,889,680
<i>LMI Single Family</i>	\$43,884,580	\$31,742,140	\$31,744,680			\$107,371,400
<i>LMI Multifamily</i>	\$15,576,622	\$7,749,768	\$10,536,110			\$33,862,500
<i>Commercial New Construction</i>	\$13,328,280	\$11,355,695	\$0			\$24,683,975
<i>Low Rise New Construction</i>	\$5,643,750	\$5,192,250	\$0			\$10,836,000
<i>Multifamily New Construction</i>	\$5,835,186	\$4,319,952	\$0			\$10,155,138
<i>Anaerobic Digesters</i>	\$4,050,000	\$4,050,000	\$4,050,000			\$12,150,000
<i>Fuel Cells</i>	\$2,000,000	\$2,000,000	\$2,000,000			\$6,000,000
<i>Small Wind</i>	\$2,030,000	\$2,030,000	\$2,030,000			\$6,090,000
<i>Solar Thermal</i>	\$3,000,000	\$0	\$0			\$3,000,000
<i>Combined Heat & Power</i>	\$26,050,000	\$13,050,000	\$9,450,000			\$48,550,000
Resource Acquisition Transition Chapter Total	\$200,440,575	\$108,983,190	\$62,060,790	\$0	\$0	\$371,484,555
Market Characterization & Design Chapter						
	\$3,250,000	\$4,750,000	\$2,500,000	\$500,000	\$500,000	\$11,500,000
<i>NYS Cost Recovery Fee</i>	\$5,078,082	\$2,907,646	\$1,743,348	\$27,725	\$33,675	\$9,790,475
Total Market Development	\$208,768,657	\$116,640,836	\$66,304,138	\$527,725	\$533,675	\$392,775,030
Innovation & Research						
Market Characterization & Design Chapter						
	\$0	\$250,000	\$0	\$0	\$0	\$250,000
<i>NYS Cost Recovery Fee</i>	\$ -	\$ 6,391	\$ -	\$ -	\$ -	\$ 6,391
Total Innovation & Research	\$ -	\$ 256,391	\$ -	\$ -	\$ -	\$ 256,391
Administration						
	\$18,465,753	\$10,596,498	\$6,339,447	\$0	\$0	\$35,401,698
Evaluation						
	\$3,587,500	\$4,962,500	\$6,599,500	\$732,500	\$997,000	\$16,879,000
Total	\$230,821,910	\$132,456,225	\$79,243,085	\$1,260,225	\$1,530,675	\$445,312,119

Similarly, Tables 4 through 12 present the associated benefits of these investments. Benefits are rounded to the nearest 1,000 therefore totals may not sum. Customer Bill Savings are calculated as direct energy bill savings realized by customers participating in NYSERDA's programs. For Tables 7 through 10, emissions reductions, energy metrics, and bill savings are measured on a 'lifetime' basis to account for the repeating benefits that are realized year-after-year from the implementation of clean energy activity. The carbon benefits are estimated using standard factors to convert electricity, natural gas, and petroleum savings into carbon (1160 lbs/MWh, 117 lbs/MMBtu, 162 lbs/MMBtu respectively). Estimated bill savings are based on avoided retail rates and include electric, natural gas and petroleum bill savings.

authorization on a combined basis. The initial budget for CRF assumes the assessment will average 2.2% of funding over the term of the CEF.

Table 4. Market Development and Innovation & Research Portfolio Energy Efficiency Cumulative First Year Annual Benefits (MWh and MMBtu)

	2016	2017	2018	Total	% of 10 year Minimum Goals
Market Development					
MWh	527,000	225,000	117,000	872,000	8%
MMBtu	3,741,000	2,038,000	945,000	6,721,000	50%
Innovation and Research					
MWh	-	-	-	-	0%
MMBtu	-	-	-	-	0%
Total MWh	527,000	225,000	117,000	872,000	8%
Total MMBtu	3,741,000	2,038,000	945,000	6,721,000	50%

Table 5. Market Development and Innovation & Research Energy Efficiency Cumulative First Year Annual Benefits by Chapter and Initiative (MWh)

Market Development	2016	2017	2018	Total
Resource Acquisition Transition Chapter				
<i>Commercial</i>	77,000	44,000	-	121,000
<i>Industrial</i>	201,000	65,000	27,000	292,000
<i>Agriculture</i>	6,000	6,000	-	12,000
<i>Multifamily Market Rate</i>	1,000	1,000	-	3,000
<i>Single Family Market Rate</i>	1,000	2,000	-	3,000
<i>LMI Single Family</i>	5,000	5,000	5,000	16,000
<i>LMI Multifamily</i>	21,000	16,000	25,000	62,000
<i>Commercial New Construction</i>	20,000	17,000	-	38,000
<i>Low Rise New Construction</i>	6,000	6,000	-	12,000
<i>Multifamily New Construction</i>	14,000	11,000	-	26,000
<i>Anaerobic Digesters</i>	-	-	-	-
<i>Fuel Cells</i>	-	-	-	-
<i>Small Wind</i>	-	-	-	-
<i>Solar Thermal</i>	-	-	-	-
<i>Combined Heat & Power</i>	175,000	52,000	60,000	287,000
Resource Acquisition Transition Chapter Total	527,000	225,000	117,000	872,000
Total Market Development	527,000	225,000	117,000	872,000
Innovation and Research	-	-	-	-
Total Innovation & Research	-	-	-	-

Table 6. Market Development and Innovation & Research Energy Efficiency Cumulative First Year Annual Benefits by Chapter and Initiative (MMBtu)

Market Development	2016	2017	2018	Total
Resource Acquisition Transition Chapter				
<i>Commercial</i>	729,000	384,000	-	1,113,000
<i>Industrial</i>	1,944,000	641,000	276,000	2,861,000
<i>Agriculture</i>	21,000	21,000	-	41,000
<i>Multifamily Market Rate</i>	142,000	167,000	-	309,000
<i>Single Family Market Rate</i>	98,000	118,000	-	215,000
<i>LMI Single Family</i>	152,000	152,000	152,000	456,000
<i>LMI Multifamily</i>	461,000	402,000	517,000	1,380,000
<i>Commercial New Construction</i>	27,000	23,000	-	50,000
<i>Low Rise New Construction</i>	63,000	51,000	-	114,000
<i>Multifamily New Construction</i>	105,000	79,000	-	184,000
<i>Anaerobic Digesters</i>	-	-	-	-
<i>Fuel Cells</i>	-	-	-	-
<i>Small Wind</i>	-	-	-	-
<i>Solar Thermal</i>	-	-	-	-
<i>Combined Heat & Power</i>	(1,000)	-	-	(2,000)
Resource Acquisition Transition Chapter Total	3,741,000	2,038,000	945,000	6,721,000
Total Market Development	3,741,000	2,038,000	945,000	6,721,000
Innovation and Research	-	-	-	-
Total Innovation & Research	-	-	-	-

Table 7. Market Development and Innovation & Research Portfolio Lifetime Benefits

	2016	2017	2018	Total	% of 10 year Minimum Goals
Market Development					
Renewable Energy (MWh)	300,000	196,000	196,000	692,000	1%
CO2e Reductions (tons)	7,750,000	3,867,000	1,832,000	13,450,000	10%
Customer Bill Savings	1,256,671,000	728,563,000	377,230,000	2,362,464,000	6%
Private Investment	590,089,000	321,167,000	251,897,000	1,163,151,000	4%
Innovation and Research					
Renewable Energy (MWh)	-	-	-	-	0%
CO2e Reductions (tons)	-	-	-	-	0%
Customer Bill Savings	-	-	-	-	0%
Private Investment	-	-	-	-	0%
Renewable Energy (MWh)	300,000	196,000	196,000	692,000	1%
Total CO2e Reductions (tons)	7,750,000	3,867,000	1,832,000	13,450,000	10%
Total Customer Bill Savings	1,256,671,000	728,563,000	377,230,000	2,362,464,000	6%
Total Private Investment	590,089,000	321,167,000	251,897,000	1,163,151,000	4%

Table 8. Market Development and Innovation & Research Renewable Energy Lifetime Benefits by Chapter/Initiative (MWh)

	2016	2017	2018	Total
Market Development				
Resource Acquisition Transition Chapter				
<i>Commercial</i>	-	-	-	-
<i>Industrial</i>	-	-	-	-
<i>Agriculture</i>	-	-	-	-
<i>Multifamily Market Rate</i>	-	-	-	-
<i>Single Family Market Rate</i>	-	-	-	-
<i>LMI Single Family</i>	-	-	-	-
<i>LMI Multifamily</i>	-	-	-	-
<i>Commercial New Construction</i>	-	-	-	-
<i>Low Rise New Construction</i>	-	-	-	-
<i>Multifamily New Construction</i>	-	-	-	-
<i>Anaerobic Digesters</i>	100,000	100,000	100,000	300,000
<i>Fuel Cells</i>	50,000	50,000	50,000	150,000
<i>Small Wind</i>	46,000	46,000	46,000	138,000
<i>Solar Thermal</i>	104,000	-	-	104,000
<i>Combined Heat & Power</i>	-	-	-	-
Resource Acquisition Transition Chapter Total	300,000	196,000	196,000	692,000
Total Market Development	300,000	196,000	196,000	692,000
Innovation and Research	-	-	-	-
Total Innovation and Research	-	-	-	-

Table 9. Market Development and Innovation & Research Lifetime Benefits by Chapter/Initiative (tons CO2e Reductions)

	2016	2017	2018	Total
Market Development				
Resource Acquisition Transition Chapter				
<i>Commercial</i>	1,302,000	714,000	-	2,016,000
<i>Industrial</i>	3,132,000	1,019,000	434,000	4,586,000
<i>Agriculture</i>	64,000	64,000	-	128,000
<i>Multifamily Market Rate</i>	125,000	144,000	-	269,000
<i>Single Family Market Rate</i>	159,000	191,000	-	349,000
<i>LMI Single Family</i>	255,000	257,000	257,000	769,000
<i>LMI Multifamily</i>	524,000	441,000	603,000	1,568,000
<i>Commercial New Construction</i>	244,000	208,000	-	452,000
<i>Low Rise New Construction</i>	131,000	118,000	-	250,000
<i>Multifamily New Construction</i>	261,000	203,000	-	464,000
<i>Anaerobic Digesters</i>	53,000	53,000	53,000	158,000
<i>Fuel Cells</i>	26,000	26,000	26,000	78,000
<i>Small Wind</i>	24,000	24,000	24,000	73,000
<i>Solar Thermal</i>	55,000	-	-	55,000
<i>Combined Heat & Power</i>	1,395,000	405,000	435,000	2,235,000
Resource Acquisition Transition Chapter Total	7,750,000	3,867,000	1,832,000	13,450,000
Total Market Development	7,750,000	3,867,000	1,832,000	13,450,000
Innovation and Research	-	-	-	-
Total Innovation and Research	-	-	-	-

Table 10. Market Development and Innovation & Research Lifetime Benefits by Chapter/Initiative (Customer Bill Savings)

	2016	2017	2018	Total
Market Development				
Resource Acquisition Transition Chapter				
<i>Commercial</i>	\$222,000,000	\$125,000,000	\$0	\$347,000,000
<i>Industrial</i>	\$175,000,000	\$58,000,000	\$25,000,000	\$258,000,000
<i>Agriculture</i>	\$18,005,000	\$18,005,000	\$0	\$36,010,000
<i>Multifamily Market Rate</i>	\$34,500,000	\$40,500,000	\$0	\$75,000,000
<i>Single Family Market Rate</i>	\$40,778,000	\$48,933,000	\$0	\$89,711,000
<i>LMI Single Family</i>	\$58,207,000	\$58,730,000	\$58,730,000	\$175,666,000
<i>LMI Multifamily</i>	\$150,000,000	\$126,000,000	\$172,500,000	\$448,500,000
<i>Commercial New Construction</i>	\$69,713,000	\$59,395,000	\$0	\$129,109,000
<i>Low Rise New Construction</i>	\$38,000,000	\$34,000,000	\$0	\$72,000,000
<i>Multifamily New Construction</i>	\$60,000,000	\$48,000,000	\$0	\$108,000,000
<i>Anaerobic Digesters</i>	\$3,000,000	\$3,000,000	\$3,000,000	\$9,000,000
<i>Fuel Cells</i>	\$5,000,000	\$5,000,000	\$5,000,000	\$15,000,000
<i>Small Wind</i>	\$8,000,000	\$8,000,000	\$8,000,000	\$24,000,000
<i>Solar Thermal</i>	\$4,718,000	\$0	\$0	\$4,718,000
<i>Combined Heat & Power</i>	\$369,750,000	\$96,000,000	\$105,000,000	\$570,750,000
Resource Acquisition Transition Chapter Total	\$1,256,671,000	\$728,563,000	\$377,230,000	\$2,362,464,000
Total Market Development	\$1,256,671,000	\$728,563,000	\$377,230,000	\$2,362,464,000
Innovation and Research	-	-	-	-
Total Innovation and Research	-	-	-	-

Table 11. Market Development and Innovation & Research Lifetime Benefits by Chapter/Initiative (Private Investment)

	2016	2017	2018	Total
Market Development				
Resource Acquisition Transition Chapter				
<i>Commercial</i>	\$88,000,000	\$36,000,000	\$0	\$124,000,000
<i>Industrial</i>	\$174,240,000	\$36,240,000	\$8,160,000	\$218,640,000
<i>Agriculture</i>	\$5,429,000	\$5,429,000	\$0	\$10,857,000
<i>Multifamily Market Rate</i>	\$13,000,000	\$14,000,000	\$0	\$27,000,000
<i>Single Family Market Rate</i>	\$34,027,000	\$45,371,000	\$0	\$79,398,000
<i>LMI Single Family</i>	\$7,223,000	\$5,714,000	\$5,714,000	\$18,650,000
<i>LMI Multifamily</i>	\$76,000,000	\$79,000,000	\$146,000,000	\$301,000,000
<i>Commercial New Construction</i>	\$28,630,000	\$24,393,000	\$53,023,000	\$106,046,000
<i>Low Rise New Construction</i>	\$9,240,000	\$8,720,000	\$0	\$17,960,000
<i>Multifamily New Construction</i>	\$38,300,000	\$29,300,000	\$0	\$67,600,000
<i>Anaerobic Digesters</i>	\$3,000,000	\$3,000,000	\$3,000,000	\$9,000,000
<i>Fuel Cells</i>	\$4,000,000	\$4,000,000	\$4,000,000	\$12,000,000
<i>Small Wind</i>	\$4,000,000	\$4,000,000	\$4,000,000	\$12,000,000
<i>Solar Thermal</i>	\$7,000,000	\$0	\$0	\$7,000,000
<i>Combined Heat & Power</i>	\$98,000,000	\$26,000,000	\$28,000,000	\$152,000,000
Resource Acquisition Transition Chapter Total	\$590,089,000	\$321,167,000	\$251,897,000	\$1,163,151,000
Total Market Development	\$590,089,000	\$321,167,000	\$251,897,000	\$1,163,151,000
Innovation and Research	-	-	-	-
Total Innovation and Research	-	-	-	-

Table 12. Market Development and Innovation & Research Participants

Market Development	2016	2017	2018	Total
Resource Acquisition Transition Chapter				
<i>Commercial</i>	246	144	-	390
<i>Industrial</i>	370	155	80	605
<i>Agriculture</i>	330	330	-	660
<i>Multifamily Market Rate</i>	38,000	68,000	-	106,000
<i>Single Family Market Rate</i>	4,080	4,896	-	8,976
<i>LMI Single Family</i>	10,146	10,350	10,350	30,846
<i>LMI Multifamily</i>	73,000	70,000	77,000	220,000
<i>Commercial New Construction</i>	54	46	-	100
<i>Low Rise New Construction</i>	2,807	2,605	-	5,412
<i>Multifamily New Construction</i>	7,500	6,000	-	13,500
<i>Anaerobic Digesters</i>	2	2	2	6
<i>Fuel Cells</i>	2	2	2	6
<i>Small Wind</i>	35	35	35	105
<i>Solar Thermal</i>	190	-	-	190
<i>Combined Heat & Power</i>	45	35	30	110
Resource Acquisition Transition Chapter Total	136,807	162,600	87,499	386,906
Total Market Development	136,807	162,600	87,499	386,906
Innovation and Research	-	-	-	-
Total Innovation and Research	-	-	-	-